

Innovation in the Application of Digital Tools for Managing Uncertainty: The Case of UK Independent Film

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This research investigates innovation in how film producers use social digital tools to engage consumers, reduce demand uncertainty and respond to the challenge of digital disruption that affects the traditional film value chain. Through three empirical case studies of film production and exploitation, we examine examples of innovation in product, service, distribution, marketing and process, each having important implications at the organizational level. Our findings show that innovations in one area have important implications for other areas, distribution impacting on concepts of product and service, for example. We also show that internal firm micro-process dynamics impact directly on external interactions between the firm, consumers en masse and partner firms. Our research thus lies at the nexus of innovation, social media and uncertainty management, and questions the boundaries found in innovation ‘types’ or dominant taxonomies in traditional R&D frames.

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Introduction

Film production is facing increasing challenges caused by declining revenues from DVD and TV rights exploitation. Digital tools, applied in new marketing and distribution models, form innovative strategic responses to major threats to film businesses caused by digital disruption (UKFC, 2010). These interventions, however, occur far earlier in the product life cycle and are undertaken by different parties than has traditionally been the case and can be seen as the active management of consumer demand uncertainty (Miller & Shamsie, 1999; Dempster, 2006). We ask how social digital tools are applied to manage uncertainty in the UK film business and adopt an empirical case study approach to investigate this. In doing so, we address a gap in the literature at the nexus of innovation, social media and uncertainty management in a specific creative industry, film. Whilst Dempster (2006) explores risk and uncertainty management in theatre and Sgourev (2012) deals with risk and innovation in opera, the specific ‘spreadable’ nature of digital media (Jenkins, Ford & Green, 2012) has not been explored in an innovation context for managing uncertainty in this setting.

Exploring examples of innovation, we illustrate their implications for product, process, content, delivery, marketing and user interface, and suggest that the boundaries of ‘type’ and ‘parameter’ found in the innovation literature are much more permeable than suggested (den Hertog, 2000; Amara, Landry & Doloreux, 2009). The use of particular social digital technology in our cases demonstrates its value as a product, and a service and as a means of distribution. Evidence from our studies also demonstrates a direct link from micro-processes in marketing to firm-level decision making, and that it is fundamentally interlinked with complex multi-firm value chains and has implications for industry-wide organizational patterns. The use of digital tools enrolling individual consumers en masse as well as other firms also points to further permeability across vectors of innovation that have been characteristically considered separately (McKelvie & Wiklund, 2008; Davis, Creutzberg & Arthurs, 2009; Preston, Kerr & Cawley, 2009). In addition to outlining relatively successful and unsuccessful

examples of innovations, we consider management issues that affect their results. In response, we present specific considerations to be taken into account when new technologies are adopted across networks of firms employing differing process models for managing uncertainty, as is often the case in creative industry value chains. We suggest that although digitally enabled innovation illuminates organizational tensions, it potentially provides solutions.

The paper proceeds by reviewing the literature on innovation, in particular focusing on creative industries (CIs) and the role of managing uncertainty in understanding such innovation. We outline how managing uncertainty has generally been handled through the film value chain (FVC), the challenges facing the film industry and the potential of new digital technology to address these challenges. We then set out our methods for investigating the adoption and adaptation of such tools in the film industry and present our results in the form of empirical case studies from the life cycle of three feature films. We discuss the theoretical implications and conclude with limitations of the study and point to future research possibilities.

Literature Review and Theoretical Framework

Innovation and Creative Industries

Despite a great increase in innovation research, innovation remains a ‘slippery concept’ (Green, Miles & Rutter, 2007: 17). The features and workings of creativity and innovation are noted as highly elusive across value chains in the realm of CIs (Brandellero & Kloosterman, 2010) with the two terms being used interchangeably by some theorists (Küng, 2008). Understood by Schumpeter (1934) as applied invention, innovation is regularly studied with a focus on five main areas: production, process, marketing, service and administrative innovation (Lin, Chen & Chiu, 2009). Traditional links between science, engineering and technology research and innovation theory have led to studies focused on research and development (R&D) and material product and process innovation, with innovation in services being relatively new (Preston, Kerr & Cawley, 2009). The absence of a specific equivalent to an R&D stage for CIs (Green, Miles & Rutter, 2007; Morrison & Potts, 2008) means they have rarely been part of these studies. This neglect is because of the differentiating characteristics of the creative industries. Innovation is problematic because of the ‘creative’ nature of CIs. Indeed, CIs’ effective ‘R&D’ processes are routinely carried out over an extended value chain as a normal aspect of business operations and strategy. Stoneman (2010), for example, sees aesthetic novelty as innovation, labelling it ‘soft’, embedded and unconscious. Others challenge this, seeing innovation as the resolution of a scientific or technological uncertainty in addition to the introduction of novelty (Cunningham, 2011).

Because of the creative element of work, characteristics of CI operations have been compared to the exploration of innovation in knowledge-intensive business services (Toivonen&Tuominen, 2009). Internally developed projects (as opposed to externally promoted R&D initiatives) including innovations in service content are highlighted in this stream of research. Miles (2008) builds on Soete and Miozzo (2001) and Pavitt (1984) to identify a ‘professional knowledge-based’ style of innovation organization that takes place on-the-job and presents challenges in its reproduction. One-off innovations in specialized services have some application to CIs (Green, Miles & Rutter, 2007). These may be seen, for example, in the role of different organizational

factors and internal firm micro-process dynamics in artistic innovation (Castañer & Campos, 2002) or the variety of factors contributing to innovation in the media industries (Handke, 2008). Distinctions are made between radical and incremental, product and service innovations in order to compare innovative output (McKelvie & Wiklund, 2008).

Studies influenced by the technological change literature, which designates innovation as the successful implementation of creative ideas in new products or services with commercial ends, are also problematic templates for the creative industries (Janszen, 2000; Küng, 2008). Such contributions tend to be characterized by a view of phased innovation as a trajectory of origin, action, adoption and retention of a new idea/technology at an industrial macro level (Potts et al., 2008a; Potts, 2009b). This characterization, however, is not generally applicable for the creative industries, which are as identified by Potts et al. (2008a) as the set of (social network) markets in which, because of essential novelty, value is uncertain, and agents thus rely on information from the choices of others to coordinate their own generic behaviour. This would see creation and the introduction of novelty and innovation as occurring over project-based open networks (Morrison & Potts, 2008). Attention to digital technology at the nexus of CIs and innovation literature concentrates on the efficacy of digital tools to facilitate ‘open innovation’ (Potts, 2009a). Open innovation stems from Schumpeter’s theories of producer innovation, developed to account for production and innovation operating across a network of firms. The extension and application to CIs is to consumer/ producer co-creation over open networks. This process of production and innovation is facilitated through ‘web-based technologies that enable devoted micro-communities of consumers to engage’ and are observable in new business and cultural models of ‘situated creativity’ (Potts et al., 2008b: 459). Consumers’ greater involvement in production creates a feedback loop of creativity that shifts innovation from supply-side producer-centric to demand-side, consumer-centric (Potts et al., 2008b).

The links between novelty, uncertainty and social networks are vital aspects of innovation in CIs. Hartley (2012), citing the fashion industry, analyses CIs as departing from neoclassical economic models of self-interest, and presents it as an example of a risk culture where rationality is a product of the social network system. That is, individuals’ choices are determined by the choices of other networked agents: what clothes people buy, films they see, music they choose depends on what others have chosen due to inherent product novelty. Brandellero and Kloosterman (2010) distinguish types of innovation in relation to the cultural industries value chain and suggest innovation can be seen in relation to its existence within or outside the firm, and that both can involve high levels of risk and uncertainty in relation to audience response and outcomes. Researching cases that bridge this endogeneity–exogeneity divide is recognized as a valuable contribution to the study of innovation embedded in complex social fields (Brandellero & Kloosterman, 2010). The importance of networked responses to uncertainty is identifiable across a range of research in creative sector innovation. These include: technology based innovation, in which emerging technologies are leveraged to provide opportunities in products and processes (Green, Miles & Rutter, 2007); product and content innovation facilitated by the greater involvement of users/ consumers (Cassarino & Aldo, 2007; Küng, 2008; Colapinto & Porlezza, 2012); marketing and delivery innovation in the form of electronically mediated product and service delivery, e.g. self-publishing (Preston,

Kerr & Cawley, 2009); and business model innovation in which new revenue models, streams and ways of sharing risk and reward are generated (Green, Miles & Rutter, 2007). Interactions between firms are generally approached from an interest in geographic clustering and innovation at the sector level (Davis, Creutzberg & Arthurs, 2009), with research focusing on digital media, looking at knowledge inputs within this framework (Preston, Kerr & Cawley, 2009).

Demand uncertainty is taken to be central to the CIs, and though full resolution is deemed impracticable, addressing it is an essential element of the functioning of CIs (Caves, 2000). We suggest that innovation in new products or services is a response to the management of commercial or demand uncertainty and present our results and discussion in support of this position. We do so through an examination of the introduction of digital tools in marketing and distribution in independent film-making. The film industry is a prominent subsector of the UK's CIs, providing £4.6bn (7%) of gross domestic product in 2011 (Oxford Economics, 2012), and understanding innovation here has important implications for economic growth. The film industry is characterized by its highly structured and managed activities that constantly aim at novel productions and address consumer demand uncertainty in conjunction with dispersed firms. As Küng (2008) notes, activities related to content creation, packaging and marketing are acknowledged as the appropriate place to look for this innovation in CIs. We examine activity that occurs across networks of firms with results co-produced by the consumer base, including taste-makers that assess the product and link it to consumption. In doing so, our paper contributes to the call for further research to provide insights into on-the-job experience, experimentation and prototyping (Green, Miles & Rutter, 2007; Cunningham, 2012). We also highlight innovative content-related activities across elements of business model, strategy and systems (Küng, 2008), including new methods of identifying tastemakers in creative firms' innovative working practices. The nature of firms' relationships with other firms is noted as a cause for sector specific variation in innovation (Green, Miles & Rutter, 2007). First we provide important context for understanding independent film production and its challenges.

Managing Uncertainty: The Film Value Chain

CI companies develop processes to respond to high degrees of uncertainty in the provision of their creative services (Caves, 2000). Within the film industry, in the absence of any objective, probabilistic risk assessment process (De Vany, 2004), film practitioners use conventions to formulate and coordinate action. The traditional response to the extreme uncertainty and high sunk costs involved in production and distribution of a unique product has been adoption of the film value chain (FVC) as a management tool (Finney, 2010). The FVC characterizes the structure and economic organization of the independent (non-Hollywood studio) film industry, whereby the life cycle of a film is segmented into sequential stages, moving through development, financing, production, sales, distribution and exhibition stages to final consumption. Different companies, each with specialized project tasks, take on responsibility and relative financial risk and reward at each stage.

Companies develop different strategies based on how directly they bear the weight of consumer (final end user) demand uncertainty. Producers sell the promise of future paying viewers to practitioners downstream to raise external finance to make their film. In exchange for offloading the direct financial risk of production, the

overwhelming majority of future revenue producing rights to the intellectual property (IP) are sold (Finney, 2010). To balance their own exposure to uncertainty, exhibitors, distributors, sales agents and investors generally operate at scale, employing a portfolio approach in response to the extreme Pareto distribution that governs film revenues (De Vany, 2004).

Judgements about the likelihood of consumer demand inform decision-making across the FVC. Distributors, using benchmarks of past performance of comparable titles estimate a film's performance in their geographic territories, taking into account the likely opinion of exhibitors who may book the film. Such calculations inform their decisions to part-finance a production, or to buy the rights to exploit the finished film from a sales agent. Sales agents gauge likely interest from distributors across the globe, before making a decision to provide production finance through buying the rights to sell the film for a commission. As Dempster (2006) notes, creative entrepreneurs' risk management strategies reflect a complex interaction of uncertainties. A producer must take all these future potential relationships into account when managing their own operations.

Challenges Posed by Digital Disruption

The effects of digital disruption, including falling returns from TV rights and DVD revenues, are having a significant impact on how film companies manage uncertainty and are stimulating innovation in this area. Ofcom (2011) and the Oxford Internet Survey (Blank & Dutton, 2011) cite greater control of consumption across multiple digitally enabled devices as defining elements of the last digital decade. Next generation Internet users, who are much more likely than other Internet users to download video and other entertainment content, have grown from 20 per cent of the UK Internet using population in 2007, to 44 per cent in 2011 (Blank & Dutton, 2011). New consumption patterns are facilitated by digital technology and most easily by piracy. UK film revenues from physical video rental and retail fell by £564m between 2003 and 2010; TV by £9m, with Internet and TV Video On Demand (VOD) rising only £101m in the same period (BFI, 2011). Only 1 per cent of UK film viewing is via legal download (BFI, 2011). This has reduced profits in the sales and distribution sectors, thus decreasing flows along the value chain to producers and the availability of new investment.

Despite a decade of UK public policy aimed at film business sustainability (UKFC, 1999; Barratt, 2011), the most recent survey of corporate finance of British film companies indicates that typically independent production companies were technically insolvent and independent distributors generated average retained losses of over £100k (UKFC/Northern Alliance, 2009). The structural economic model of the FVC has not adapted to new modes of consumption. A strategy of exploiting maximum willingness to pay through various time-limited channels is entrenched by larger multinational integrated companies, militating against change (Tan & Netessine, 2010).

Digital Solutions

In response to the changes in market conditions, producers are innovating in their use of digital technology to manage consumer demand uncertainty. There are two interrelated strategies in which digital tools connected to marketing and distribution enable this. The first is the leveraging of Internet enabled content (extra video, online

games, cross-platform storytelling) and dissemination tools (social networks, blogs, streaming and download services) to create greater consumer demand and increased revenues by creating a more popular experience or product. Such strategies include social media data mining as audience research (Asur & Huberman, 2010), crowd financing as marketing (Seog & Hyun, 2009), early stage audience engagement and vastly increased consumer interaction.

The second strategy is adoption of digital technology in a proactive pursuit of disintermediated distribution, i.e., circumventing some or many traditional segments of the FVC in order to take a greater share of revenues. Whereas traditional industrial models of recouping investment are founded on territory-by-territory, sequential distribution of each analogue product in a strictly enforced time series of windows (Cinema, DVD retail, DVD rental, Pay per View, Pay TV, Free TV, etc.), digital dissemination of film (or any file) is inherently global and immediate. This raises a significant tension with common practice and creates pressure on these windows. The ability to identify demand in international markets and deliver directly is crucial to the successful exploitation of digital technology (Vuorensola, 2011; Kemp, 2012), especially when capitalizing on the aggregation of niche interest for few products over the long term (Brynjolfsson, Yu & Smith, 2006). Hennig-Thurau, Wiertz and Feldhaus (2012: 32) describe the post-release ‘Twitter effect’ in movies as ‘influencing consumers’ subsequent early adoption of new movies by enabling consumers to spread their post-purchase quality perceptions on large scale and very fast’. The innovation by film producers is to harness these digital tools to address environmental threats. However, it is the integration of these tools within reorganized relationships across segments of the FVC, rather than simple adoption of a new technology, that constitutes the radical innovation, and potentially offers both solutions to the economic downside of disruption, and challenges the FVC as a stable construction for managing uncertainty.

Methods

For this research, a case study approach was chosen in order to develop a holistic picture of elements potentially effecting, influencing and comprising innovation. These elements include the multiple viewpoints and data sources available to research that is embedded in context (Yin, 1994). This method fits well with previous investigations and past calls for further research in the literature. Exploring styles of innovation through rich description of observed empirical cases is an established method in innovation research (Green, Miles & Rutter, 2007). The case method has been particularly effective in looking at the film sector, in connection to technological innovation (Cassarino & Aldo, 2007) and as a lens to look at emerging businesses (Colapinto & Porlezza, 2012). Qualitative, exploratory methods to investigate the suitability of theoretical constructs to empirical practice have uncovered a need for further media industry innovation research. Micro-level explorations investigating how such changes occur in media firms are called for to reflect and understand how the systemic nature of innovation is related to strategy and performance (Küng, 2008).

To provide insight into the important and changing industry of independent film, a purposive sampling approach was taken (Saunders, Thornhill & Lewis, 2009). Three films were selected as case studies to give a theoretically representative rather than statistically representative sample (Eisenhardt, 1989). Although all experiential creative products are unique, the cases can be considered ‘typical’ in relation to the

manner in which independent film functions (Dul & Hak, 2008). This qualification is made by virtue of their financing arrangements: classical patchwork models (Finney, 2010); the involvement of multiple, regular companies of the FVC; the budget levels and narrative content (BFI, 2011). The cases were appropriate as all the films benefited from public funds with remits for innovation by piloting new models in areas of digital, film, marketing and distribution. Each involves new operational arrangements with other companies in what are effectively project-based joint ventures. The multiplicity of cases provides a spread of different genres, production budget levels, marketing and distribution budget levels and distribution campaign strategies. Analysis within and between cases (Eisenhardt & Graebner, 2007) draws out differences and commonalities in service innovation development so that inductive conclusions from empirical data can be made (Yin, 1994; Dul & Hak, 2008).

A participant observer approach delivered data from longitudinal case studies comprising the planning and execution of digitally supported marketing and distribution campaigns for three feature films over an 18-month period (February 2010 to November 2011). The first author participated, gaining access to firm activities by acting as an investor's representative to chart films from post-production, through international sales to the theatrical distribution stage. The role allowed limited participation in the form of discussing project options and providing analytic information on related issues, but not directing action. Data collection included observing meetings with participants across the FVC: writers, producers, directors, investors, sales agents, distributors, public relations firms and digital marketing agencies. These were complemented by email correspondence between practitioners which detail the digitally enabled marketing and distribution campaigns, their organization and execution amongst several different companies per case, as well as internal company decisions and opinions. These emails often concern key strategy documents relating to the exploitation of the films, such as: marketing strategies, deal terms, advertising budgets, etc. Over 150 such documents were collated and cross-referenced with the observation and email data. Systematic reflections and interpretations of these materials further benefited from secondary sources such as the public funds' project assessment records and secondary data on the UK industry context (UKFC, 2010).

Basic exploratory social network analysis (SNA) of the films' digital marketing (Twitter) campaigns to analyse the effectiveness of social media strategies was conducted by the first author and made available to the case films' producers (Barash & Golder, 2010). SNA was applied as a lens to track, through individual conversation details, consumers' reception of marketing messages, consumers' position in the social network and the potential interaction between these two characteristics. Thanks to Twitter's spanning of institutional boundaries, an understanding of how organizations (e.g., cinemas) are connected by individual ties is also possible as 'Analysis of egocentric networks can often lead to actionable results if you want to use Twitter as a development or advertising platform . . . knowing the influential individuals in a Twitter information network helps you pick "seeds" to which you can send your ads and promotions. Understanding the network structure in a particular Twitter network is equally important to getting actionable results' (Barash & Golder, 2010: 155, 163). Networks for Films B and C were accessed and mapped at strategic points prior to release – six weeks, then four weeks and two weeks prior to release

and then weekly post-release. The user network was also mapped for Film A but only post-release due to the lack of availability of the tool at launch date. Using best practice as defined by Barash and Golder (2010), the user networks of two of the films' accounts and search networks of key words relevant to the films' audience engagement campaigns (e.g., star names or genre topics) were retrieved.

We analysed the data using thematic analysis, with themes derived from studies in the literature review attending to the importance of novelty, uncertainty and social networks in innovation. Where theoretical constructs were tried and found inapplicable in this case – e.g. 'soft innovation' (Stoneman, 2010) or 'open innovation' (Potts, 2009a) – they were discarded. Prior pilot case films and a literature review providing the core orienting concept of the FVC generated the focus of the research question and enabled the construction of predetermined themes for coding. Data from observations, emails, industry documents and social network analysis of the effects of marketing and distribution campaigns were interrogated and arranged according to several predefined areas. These included: role in managing uncertainty (Potts et al., 2008a); position in the FVC (Brandellero & Kloosterman, 2010); novelty in intra-company operations (Castañer & Campos, 2002); and novelty in intercompany organization (Morrison & Potts, 2008). Iterative reflection on the data organized by theme and a specific research agenda to triangulate the data points to ensure reliability and validity formed the core data analysis approach.

For instance, planning documents were compared with qualitative and quantitative results of digital engagement campaigns, including SNA, and insights gained from producers' opinions of their effects. A further layer of reference was then provided by public investor assessment, monitoring and reporting information and secondary data from slates of previous public sector investments, private research company reports and industry sources. The triangulation process contextualized the data to enrich and structure the findings and limit bias (Börjesson & Elmquist, 2011). Following extensive study and interpretation, the case data were compared, contrasted and reduced to overarching narratives on their salient findings (Åhlström & Karlsson, 2009).

The Three Cases

The films cover a spread of genres and budgets, with each one using digitally enabled marketing and distribution initiatives that alter the content production and delivery activity of the producers and are in response to managing uncertainty in a disrupted market environment. Traditionally, producers do not have a major stake in the control, costs or benefits of marketing to end consumers or the accompanying distribution strategy (Davenport, 2006). Public funds for producers to carry out involvement in marketing and distribution activity aimed at improving economic return for producers is a new initiative in the UK independent film sector, and it is one that each film made use of. We proceed by giving a short introduction to the context of the cases, examine the innovative use of digital media by firms, and then address barriers to successful exploitation of this innovation.

Film A is a micro-budget (£500k or under) independent arthouse comedy without wellknown actors and a distribution budget of £50k or under. Opening on five screens, it achieved a total of approximately 65 screens. The film had a touring release over four months in autumn 2010 from a small distributor. The co-producer

companies shared direct responsibility for social media and supplemented the very low advertising budget with concerted inbound marketing activity. Inbound marketing refers to consumer engagement: pulling the audience member in with conversation, competitions and rich content rather than outbound direct advertising pushing the consumer toward a purchase.

Film B is a low-budget (£1m or under) mainstream romantic comedy without well-known actors, with a distribution budget of £400k or under. It opened on and achieved a total of approximately 80 screens. The film was released by a large UK distributor and supported by two separate digital agencies, an advertising buying agency, traditional PR activity and an offline campaign.

Film C is a medium budget (£3m or under) independent arthouse drama with wellknown actors and a distribution budget of £150k or under. It was released on and achieved a total of approximately 60 screens by a small specialist distributor. The narrative content did not lend itself to easy genre classification. Online advertising spend was relatively low and although a substantial number of digital assets were created by the producer, they were done at a late stage in the pre-release process, making it more difficult to use them most effectively. Both Films B and C were jointly released in partnership between the producer and distributor, meaning the producer was able to negotiate a revenue stream at the same recoupment position as the traditional distributor.

End Consumer Engagement via Social Media

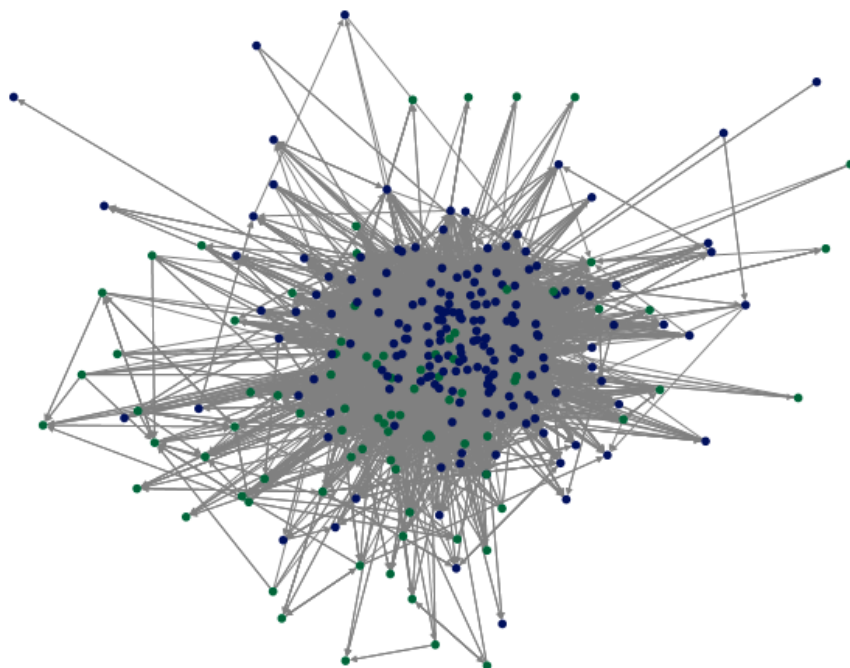
Independent producers' creation and dissemination of marketing materials such as 'behind the scenes' videos and director's blogs is relatively rare but not new, having occurred to a greater or lesser extent over the last decade. However, the extension of such material in depth, volume and timeframe, in combination with an explicit strategy of purposive company repositioning in relation to uncertainty in the FVC, qualifies the activity as innovative. It is the inter-relationship of producers' digital engagement activity with structural and financial decision-making elements of distribution that establish this as process innovation. The innovative adaptation of digital technology for consumer engagement, which aims at reducing demand uncertainty, is observable through certain characteristics of the films' campaigns. These are the increased efficiency with which digital tools can target likely consumers and the lag time or delay that exists between consumers being targeted and becoming aware of the product.

Producers of Film A conducted a social media engagement campaign over more than six months. Rich content disseminated included trailers, clips, posters and on-set interviews, but also recordings of actors and director Q&A events, which accompanied numerous film performances during the tour. These assets were leveraged by the Twitter campaign, not just to engage potential consumers but also to target key potential consumer influencers – in this instance the Twitter accounts of the cinemas playing the film during the tour. Targeting consumers via their local arthouse cinemas allowed the producers to tap into existing networks of cinema-goers. By providing links to cinema Box Office pages, links to the extra content and media coverage, the campaign provided regular devices for partners in the exhibition sector to pull in audiences.

The producers analysed the number of times the links to ticket pages were used in order to manage their strategy. Use of links functioned as a proxy for ticket purchase and screenings with lower presumed demand then received more attention. This digital campaign was part of the successful combination of factors that led to Film A being booked into 14 times more venues than in its original distribution agreement. A Twitter feed with messages from the campaign directed at certain cinemas and local influencers provided links to the venue's ticket pages and the film's digital content. Tweets by cinemas linked to extra content and ticket purchase. Each of the cinema's messages would be seen by their own audience, not just those following the film's official account, thereby expanding the reach of the campaign and also the delivery of film content in a new way.

Figure 1 shows a basic cluster analysis performed using NodeXL which further demonstrates the success of Film A's Twitter campaign in achieving its strategic distribution goal of attracting cinemas showing the film and potentially their regular attendees. The nodes, or individual Twitter accounts, are represented by circles, and their relationships by the lines between them. Two large clusters are identified in the film's network (which were potentially common to all three films' networks): a group of broadly film-related media outlets and companies (blue); and a group including user accounts of arthouse cinemas across the UK, into many of which the film was booked during its theatrical run (green). Identifying the existence of these groups, when contrasted with their absence for the other films, indicates the success of the producer's Twitter campaign in interacting with the exhibition sector of the FVC in pursuit of increasing revenues.

Figure 1. Social Network Diagram showing two Identified Clusters in the Twitter Network of Film A



Created with NodeXL (<http://nodexl.codeplex.com>)

The digital marketing of Film B showed significant traffic to the trailer being generated by marketing engagement with a fansite for a blockbuster franchise, in which an actor from Film B had a supporting role. Although taken to be a 'success indicator' by the main digital agency and distributor of the film, further analysis by the producer-appointed second digital agency indicated the fansite visitors were generally not from the UK, where the partnership was exploiting the film rights. The fansite visitors' comments also indicated they were too young to be able to see Film B. In a similar fashion, analysis of Twitter search network mentions of Film C's biggest star showed that the majority of fans who were also influential Twitter users were not in the UK, but in Japan. They were unlikely to have as large a direct impact on audience awareness in generating UK ticket sales during the short theatrical window, compared to UK-based influencers. As a result, producer resources were not allocated to Twitter consumer engagement. Social media analysis enables efficiencies to be made in marketing campaigns, in these instances application of producer knowledge in the joint distribution partnership contributed to pursuing maximum conversion of engagement into revenue.

In addition to improving the targeting of consumer engagement campaigns, the adaptation of digital technology enables monitoring of perceived demand via proxies such as Facebook 'Likes'. Demand, understood in this way, is affected by the timeliness of the provision of content to motivate a 'want-to-see' reaction. Each case study noted the delay or time lag between digital marketing activity, awareness generation and consumer action. For example, Film B saw a spike in 'Likes' of several thousand after the week of release and achieved greater Facebook attention at time of release, approximately 5,000 Facebook Likes compared to Film C's approximately 2,000 Likes, a film with triple Film B's production budget and a star averaging \$50m Box Office per movie, which conceivably would have greater inherent consumer appeal.

Film B's greater distribution budget potentially resulted in greater offline marketing being demonstrated online. However, another crucial factor contributing to perceived consumer demand was the availability of content to deliver online at the beginning of a longlead audience engagement strategy, prior to an advertising-supported campaign. This advantageous position necessitates planning and content creation at the film budgeting and production stage. Otherwise, because of the traditional gap in available finance between production and active distribution, there will either be a dearth of content to spark and maintain audience awareness, or it will arrive too late, and in a glut, which occurred in the case of Film C.

Business Process Innovation

Both the producers of Films B and C leveraged public funding to obtain positions as distributors and thereby successfully pursued a strategy of limited disintermediation. They thereby reduced their reliance on traditional distributors' resources, delivered an extended entertainment product through new channels, and altered their process of managing uncertainty by securing a diversified revenue stream. Trailers, clips and interviews, usually provided by distributors, were created and exploited by producers either singly (Film A) or in line with the joint management of the digital media campaign (Films B and C). The use of social media to deliver the content thus not only blurs the boundaries between marketing and distribution but also formed part of a marketing and distribution strategy that moved the process model further along the

spectrum from manufacturing a single creative good, to delivery of an on-going entertainment service. Digital technology disrupted the traditional FVC and facilitated a new operational model.

Comparing the cases, it is clear the public investment impacted the power dynamics between producer and distributor. However, producer power seems to be negatively associated with the total distribution budget. Where more money in absolute terms is at risk, even though that risk is shared, the distributor looks to retain more control and thereby contribute less to the new model, reducing the chances of successfully leveraging digital tools for increased engagement and potentially decreased consumer demand uncertainty. For example, Film A's long life was enabled by the low risk it represented to the distributor, as they did not commit a large amount of money to the release. By employing a touring rather than wide release, the number of prints required were fewer and the distributor was able to iteratively assess performance and determine whether continued marketing costs were merited. A contribution of £10,000 from the producer via a public funder investment mediated the distributor's risk and enabled direct producer control of the digital campaign. In contrast, when the distributor came on board Film B, it scrapped the website and digital campaign originally developed by the producer rather than build on it, despite costs being shared 50:50. Two new digital agencies were employed at arms-length from the producer, meaning the distributor could control consumer demand information flow, whereas in the lowest budgeted case, Film A, the producers had far more leeway to disseminate, track and respond to uptake of digital marketing assets.

Delayed communication between companies across the FVC negatively impacted the producers' application of digital technology to the marketing of Film C. The cinemas targeted by the distributor of Film C were only made available to the producer, the Twitter campaign manager, a maximum of two weeks before release. Therefore a content exploitation strategy similar to Film A suffered due to delay and a reliance on paid online advertising, as opposed to audiences seizing upon marketing materials discovered through electronic word of mouth, and resulted in low consumer awareness (UKFC, 2010). Sharing data and decision making between partners is necessary for organic, inbound marketing to succeed. The cases point to the importance of communication of crucial information, and aligned action required for successful exploitation of digital tools. Film A demonstrates how cross-FVC communication between producers and exhibitors can enable success in producers' innovative, digitally mediated strategies to manage consumer demand uncertainty; whereas Films B and C evidence some of the difficulties of cross-FVC communication between producer and distributor.

Discussion and Conclusions

Analysis of our empirical evidence enables a theoretical contribution to innovation studies by demonstrating how adoption of digital technology in CIs cuts across boundaries of innovation 'types' traditionally provided in the services innovation literature. In addition, innovation management implications for policy and practice in CIs are considered. We outline specific considerations to be taken into account when new technologies are adopted in innovative models for managing uncertainty across networks. When each company employs different process models to manage uncertainty, often the case in the value chains of CIs, digitally enabled innovation illuminates organizational tensions and potentially provides solutions.

Permeating Boundaries of Innovation Typology of CIs

The cases presented here fit well with the characterization of service sector innovation (Potts, 2009a). By adopting and adapting new technology to pilot models in marketing and distribution, which extend and change the nature of the experiential media product, film producers have developed novel practices aimed at economic return under conditions of ‘choice under novelty’ (Potts, 2009a).

In terms of the contribution to the literature, when examining the component elements, innovation is demonstrated across many different previously theorized innovation ‘types’ and ‘levels’. The cases permeate boundaries in (digitally enabled) content (product), delivery, marketing and process innovation. They also illustrate operational or organizational process innovation in the strategies for managing uncertainty. Therefore applying any single or dominant innovation taxonomy of content, marketing or process innovation would appear more problematic than is traditionally suggested.

Film producers’ use of social media is not a novel commercialization of the technology per se. Yet, when assessed in the social and cultural context of the particular creative industry, the innovation in adopting digital tools to address uncertainty and pursue economic value is made clear. The cases demonstrate a re-coordination of established existing technological innovations: social media engagement campaigns and their accompanying analytic tools, for a subsector-specific purpose. The materialization of existing media (e.g., Twitter and Facebook) into new practices and products (Edquist, 2001) implemented in new marketing and distribution models, evidences both an example of the management of innovation (Green, Miles & Rutter, 2007), and innovation in the management of uncertainty – itself a process innovation.

Organizational innovation is a reaction to changes in markets and the firm’s operating conditions (Green, Miles & Rutter, 2007). Drivers such as increased volatility in the demand environment (e.g., digital disruption) are categorized as prompts for organizational structures for innovation such as exploitation of new digital technologies. Direct market pressure has historically driven product differentiation and innovation (Brandellero & Kloosterman, 2010). The need to capitalize on emerging technology pushes media firms to adapt via generation of novel ideas (Eisenhardt & Martin, 2000). This set of conditions and results are borne out by the evidence of new models in independent UK film exploitation, where products are differentiated and service extended through additional content and community interaction. Previous research has analysed these aspects of innovation, e.g. in video games, and identified new models including self-publishing and embedding user-generated content (Green, Miles & Rutter, 2007; Hartley, 2012). The role of the consumer involved is apparent in our cases. In this instance, the consumer is intrinsic to establishing the value apparent when new ideas are implemented (Brandellero & Kloosterman, 2010); by viewing and sharing content via social media, the consumer becomes part of the new joint distribution model, akin to the self-publishing model in games, though complicated by specificities of the FVC. SNA tools for practitioner assessment of operation facilitate feedback so that consumer interaction is responded to and directs producer action.

Creation and dissemination of extra content provides a new value proposition to the consumer that encompasses delivering content in a new way across multiple interfaces. In the context of the application of digital tools in Films A–C, the innovation cuts across, for example, den Hertog’s (2000) four dimensions of service innovation: service concept, client interface, client delivery system and technological options. There are iterative interactions between each in our cases. Our case companies, in line with those of Tether et al. (2001), have innovated to extend their service range, by incorporating distribution with opening up new marketing via online engagement. Given the changing nature of the film industry, these innovations highlight how film producers can adapt extant technological innovations to their purpose and place themselves in positions of stronger economic potential in the FVC. Problems identified with communication between production and distribution companies in the empirical cases are current barriers to retention and diffusion of these innovative models.

Interdependency between FVC Companies for Innovation Success: Lessons for Policy and Practice

Producers identified key lessons through their piloting of new models but were unable to maximize value from their innovations. Reticence of distributors to share data and partner in informed joint decision making played a large role. Integration of producer-led marketing and responsive distributor resource allocation could have improved possibilities for revenue generation and enabled stronger evidence-based applications for future investment. But this did not occur. The tension between the operational economic models utilized to manage uncertainty by producers (projects) and distributors (portfolios) means partner objectives, although similar, are not completely aligned. This tension is further exaggerated by the perceived threat of disintermediation by producers via the Internet (Chircu & Kauffman, 1999). Sharing data and expertise on joint projects are perceived as incremental steps in that direction and, as such, are resisted. Such reticence regarding organizational change by incumbents reliant on the status quo is well established.

Cross-FVC integration required to maximize returns from adoption of digital models involves a number of novel activities. These include early stage investment in audience engagement activity (built into production budgets) and handover of some marketing control and data by distributor to producer. Current policy initiatives in the UK are exploring the structural financial complexities of setting up similar, permanent joint ventures (JV) between producers and distributors (BFI, 2012). However, success may also require the development of digital tools that explicitly demonstrate greater value creation for all parties involved. Current technological developments, delivering film and related content by leveraging social channels across the open Internet or closed systems, aim to reduce consumer demand uncertainty by mediating its transfer across segments of the FVC (Kramer, 2011; Kemp, 2012). Exploring the causal link between engagement activity, e.g. trailer viewing, re-tweeting, ‘Like’-ing, to film purchasing may provide evidence of reliable statistical relationships, which in combination with JV contractual arrangements pursued by the BFI (2012) could maximize innovation in this area.

Our paper shows how process innovations of production and distribution are increasingly becoming inter-related (Brandellero & Kloosterman, 2010). Social media is used both for product marketing and as a distribution mechanism for on-going

dissemination of creative content over an extended period. This represents innovation in both service delivery and client interface domains. The production company's role shifts from manufacturing a single experiential product and managing the uncertainty inherent in that business by selling the related risk and reward down a value chain; to delivering an experiential service through more direct mechanisms of consumer interaction, taking on greater risk and reward. Our qualitative research approach shows, in contrast to Amara, Landry and Doloreux (2009), that innovation in marketing and distribution can potentially be effectively combined. Our observations on the scope of marketing and technology skills required to implement these innovations also confirm Preston, Kerr and Cawley's (2009) findings that a diverse mix of knowledge is crucial to the innovation process in digital media. Without the distributor's full engagement, value maximization is unobtainable. A dual conclusion is apparent: inter-dependence of firms across networks must be addressed in practice, possibly via policy incentives to ensure skills transfer and innovation maximization; and interdependence of multiple aspects of innovation must be captured by theoretical conception of innovation in digitally enabled CIs.

The characteristic of film as a unique creative product with long gestation and revenue earning periods, and the time constricted nature of the study means this research provides details of three films in a disrupted environment that cannot be relied upon to be replicated elsewhere. However, to address the limitation of time, further research can analyse whether the models become embedded as habit and institutionalized in the field and progress to the retention phase in an innovation trajectory (Potts, 2009a). A technological solution may be forthcoming to address the limitation of attributing the insights here to unique products that cannot be relied upon to behave in any particular way at the Box Office (the control of data about returns believed to be forthcoming is a major barrier to trusting inter-dependency of firms governing successful innovation implementation). Exploring the causal link between digital engagement activity and film purchasing behaviour may provide evidence of reliable statistical relationships such that contested, privileged information will be removed as a barrier to innovation. Such potential indicates a rich seam of future research for the development of theory and a new era for practice, with industry and public investment attention quickly moving in this direction. More broadly, SNA as a research method can inform future work in games and other digital media sectors, such as music, which also innovates in digital distribution and marketing (Preston, Kerr & Cawley, 2009). More importantly, the breakdown between producers and consumers and the networked communities which form part of a proposition that blends product and service, e.g. music streaming recommendation engines or Massively Multiplayer Online Games (Potts et al., 2008b), suggests that much more research is needed to investigate the permeability of boundaries that digital technology introduces.

Notes

1. NodeXL is an SNA tool (Barash & Golder, 2010) to map Twitter networks: mapping connections between Twitter accounts and a defined user, or connections between users mentioning some defined search term. The connections can include: follower or followed relationships, mentions or re-tweets. Analysis determines node and network characteristics, ranging from user location and qualitative data from user self description and tweets, to information about user position and relative importance in the network. A clustering algorithm identifies groups of users calculated on the basis of the density of connections between users (Barash & Golder, 2010).
2. Facebook, a global online social network and the most popular in the UK in 2011, operates a function called the 'Like' button, allowing users to highlight to their contacts their appreciation of some piece of online content.
3. [http://www.the-numbers.com/people/ records/index101.php](http://www.the-numbers.com/people/records/index101.php)

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